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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/758,966	01/16/2004	Diane K. Stewart	F125	6517
25784 7590 02/28/2007 MICHAEL O. SCHEINBERG P.O. BOX 164140 AUSTIN, TX 78716-4140			EXAMINER OLSEN, ALLAN W	
			ART UNIT 1763	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		02/28/2007	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/758,966

Applicant(s)

STEWART ET AL.

Examiner

Allan Olsen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 December 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Drawings***

The drawings were received on December 7, 2006. These drawings are acceptable and the objections to the drawings are withdrawn.

### ***Status of Claims***

All rejections, as set forth in the Office action of September 7, 2006 are maintained. The rejections, as previously set forth, are repeated following the examiner's response to applicant's arguments.

### ***Response to Arguments***

Applicant's arguments filed December 7, 2006 have been fully considered but they are not persuasive.

With respect to the rejections made under 35 U.S.C. 102(e):

"Applicants submit that 35 U.S.C. 103(c) provides:

(l) Subject matter developed by another person, which qualifies as prior art only under one or more of subsections (e), (f), and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the claimed invention was made, owned by the same person or subject to an obligation of assignment to the same person."

On this basis, applicant has requested that both of the rejections made under 35 USC 102(e) be withdrawn because the references being applied (Musil and Stewart) were, at the time the invention was made, owned by FEI Company, the assignee of the present invention.

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This is not found persuasive because the provision of 35 U.S.C. 103(c) that applicant relies upon allows an applicant to overcome rejections that are made under 35 U.S.C. 103 but it does not provide a means to overcome a rejection that has been made under 35 U.S.C. 102. In that portion of 35 U.S.C. 103(c) which reads, "shall not preclude patentability under **this** section", the recited "this" is a reference to 35 U.S.C. 103. The reference made within 35 U.S.C. 103(c), to subsection (e), (f), and (g) of section 102 is only for the purpose of establishing the critical date that is used to determine if a reference is qualified or disqualified as "prior art" for a rejection made under 35 U.S.C. 103.

Regarding the provisional obviousness double patenting rejection, applicant indicated that a terminal disclaimer would be submitted after all other outstanding issues are resolved. The provisional ODP rejection will be maintained until a satisfactory terminal disclaimer is filed.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory

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obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-3, 13-17 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 23-25 of copending Application No. 10/664,247. Although the conflicting claims are not identical, they are not patentably distinct from each other because the variations in wording are slight and the claims are clearly directed to essentially the same process.

The co-pending '247 application does not claim a quartz substrate. It would have been obvious to one skilled in the art to use a quartz substrate because the claims of the '247 application are directed to a process that increases the transparency of a lithography mask by repairing opaque defects and the use of quartz as the transparent substrate of a lithography mask is so common that one skilled in the art would immediately envisage quartz as the transparent substrate material claimed in '247.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

**Claims 1-3, 6-8, 10-19, 21 and 22 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent Application Publication 20030047691 of Musil et al. (hereinafter, Musil).**

Musil teaches repairing opaque defects of a lithography mask by directing an electron beam and  $\text{XeF}_2$  toward a region of a quartz substrate into which  $\text{Ga}^+$  ions have been implanted (see paragraphs [0047]-[0049]).

Regarding the process parameter limitations of claims 10-12, 18 and 19 and the process results limitations of claims 6-8, 21 and 22, it is noted that Musil does not explicitly teach these limitation. However, Musil provides information regarding related operational parameters and Musil teaches process results indicating that Musil operates in a manner that meets these limitations. Specifically, Musil teaches repairing a mask by electron beam assisted etching in a manner such that the quartz substrate is not damaged. As Musil obtains results that meet the process result limitations of claims 6-8, 21 and 22, it follows that the operational parameters used by Musil are comparable to those of claims 10-12, 18 and 19. Additionally it is noted that Musil teaches minimizing the amount of electron charge used to remove defects ([0053]).

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**Claims 1-22 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by US Patent Application Publication 2004/0151991 of Stewart et al.**

Stewart incorporates by reference the teachings of Musil. Additionally, Stewart teaches (with emphasis added):

"[0036] Mask repair can use both electron beam and ion beam etching and deposition. In embodiments in which it is not desired to use ion implantation staining, an electron beam repair is preferred because it eliminates ion implantation. For example, MoSi and TaN.sub.2 absorber material can be etched using an electron beam and an etchant gas, such as XeF.sub.2, as described in **U.S. patent application Ser. No. 10/206,843 for Electron Beam Processing," by Musil et al., which is hereby incorporated by reference.** The gallium beam can be also be used for etching chrome, and **the gallium-implanted layer can be removed using the gas assisted etching using the ion beam or an electron beam."**

[0038] A strategy to repair a particular defect can include multiple stages, using combinations of ion, electron or lasers. For example, **an ion beam can be used to remove an opaque defect and then an electron beam can be used to etch a layer of gallium-implanted quartz using XeF.sub.2 as post processing to restore transmission.**

[0044] In accordance with various repair strategies that can be used, a work piece can be processed using an electron beam or an ion beam. The effects of **ion implantation can be:** 1. avoided by using an electron beam for some operations; 2. used constructively to provide desired optical properties; or 3. **eliminated by removal of the implanted layer.** Multi-stage operations that use a combination of laser beams, ion beams, and electron beams can speed operations and reduce defects. For example, **an ion beam can be used to process a defect and then an electron beam can be used to remove the effects of the ion beam.**

The references applied above have a common inventor with the instant application. Based upon the earlier effective U.S. filing date of these references, they constitute prior art under 35 U.S.C. 102(e). These rejections under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the references was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allan Olsen whose telephone number is 571-272-1441. The examiner can normally be reached on M, W and F: 1-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Allan Olsen", written in a cursive style.

Allan Olsen  
Primary Examiner  
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